

May 3, 1989

TO: Minerals File

FROM: D. Wayne Hedberg, Reclamation Hydrologist *DWH*

RE: Field Inspection, Hecla Mining Company, Escalante Silver Mine, M/021/004, Iron County, Utah

On May 3, 1989, Division staff members, Wayne Hedberg, Holland Shepherd and Scott Johnson visited the Escalante Silver Mine and met with Hecla mine personnel, Brent Willoughby, Tanny Harlin, and Jim Muskgrave. The purpose of the field inspection was to follow up on the progress of mitigation measures taken by Hecla to correct or lessen the amount of bird mortalities associated with the cyanide tailings pond. The operator had been directed to commence maintaining records of the bird mortalities, since the receipt of the Division's April 19, 1989 letter. The Division also wanted to discuss the operator's May 2, 1989 proposed sampling program for the tailings pond area.

Following some preliminary discussions in the mine office, the tailings impoundment area was inspected. A visual estimate of five - seven acres of pond surface area was covered by water at the time of our inspection. This was significantly less than during the last field inspection by Scott Johnson on April 14, 1989. The perimeter of the wetted area of the impoundment was walked and visually examined for evidence of recent bird mortalities. Two shore birds were found during our inspection. One was believed to be a Killdeer, the other was a common snipe. Pictures were taken of both birds found during the inspection. Physical evidence of pond use by either deer or antelope was also noted as observed by footprints in the soft tailings material leading up to the water's edge.

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The company currently has 5 or 6 propane cannons in use. Mr. Willoughby indicated they have been increasing their inspection frequency of the pond and have been using hand held pistols which fire "screamer" rounds to haze the birds. He also indicated that these screamer rounds appeared to be one of the most effective hazing methods that they have tested so far. Mr. Willoughby stated that the company was not implementing the 24 hour hazing recommendation that the Division had requested in the April 19th letter. Mr. Willoughby gave the Division staff a copy of a letter dated April 25, 1989, addressed to Mr. Lowell Braxton, which provides a response to the Division's April 19th letter.

Mr. Muskgrave indicated that he has been keeping a log of the birds killed, since they received our letter. He indicated they had only witnessed 7 or 8 bird mortalities within the past two weeks. Mr. Willoughby indicated that the day prior to our inspection, they had had some problems with a flock of avocets which they believed had come in sometime during the night. He indicated they had spent approximately 3 hours hazing these birds in an attempt to keep them from landing in the impoundment area. Mr. Muskgrave indicated that they have also used sodium thiosulfate on a limited basis to treat a few affected birds.

It was the operator's contention that within the next 30 days it is highly unlikely that the surface area of the impoundment will have any amount of water exposed. The operator believes that the high evaporation rates and the underdrain system will effectively reduce the surface area of the pond which is presently attracting the birds. In addition, the reclaim line which recycles surface water from the impoundment back to the mill, will also help minimize the surface area of the impoundment.

On March 30, 1989, a water sample was taken, by Hecla from the underdrain system which was producing approximately 35 gallons per minute (gpm). The operator measured an analytical value of 164 parts per million (ppm) free cyanide. Apparently, this is the only analytical sampling that has been performed by the company regarding the cyanide levels in the tailings pond. Two water samples were taken by the Division while at the impoundment area. One from the discharge line of the tailings pipeline, another was taken at the far southwest end of the pond just off shore. These samples have been analyzed by Mountain States Analytical Laboratory and yield 101.3 mg/l and 71.5 mg/l of free cyanide respectively.

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It is the operator's opinion that the ponded area was larger than normal this year due to higher than normal ice and snow melt, and lower evaporation rates. An earlier than normal warm spell tended to enhance rapid melting of the elevated ice and snow levels, resulting in a much larger surface area being inundated by water.

Mr. Willoughby believes that the elevated bird mortality rates on the pond is related to termination of underground mine water discharges to the north and south canals. These canals were apparently utilized for the last 8-9 years as habitat by local and migratory birds.

Following our inspection of the impoundment area, we looked at some of the recent reclamation work that has been performed by Hecla Mining Company. This work is being performed in a sequential manner. All the drill holes have been plugged and much of the disturbed area around the mine has been regraded and recontoured. The bone yard and scrap area has been cleaned up. The major ventilation shafts have been plugged and backfilled, but the primary decline still remains to be sealed and reclaimed. The mill site, and office facilities and parking areas will be reclaimed last. The operator is currently reclaiming the south canal. A good portion of the reclamation has already been performed. Hecla is currently reclaiming in the vicinity of the south lift station. Mr. Willoughby indicated that they are still working with the county on the Jones Dike and the North Dike reclamation proposals. They hope to have resolution of these two areas within the next 30-60 days. They hope to finish the reclamation of the south canal and the Jones Dike this year with the north canal scheduled for reclamation in 1990.

Ms. Harlin indicated that the current water level within the underground mine has returned to an elevation of 5,074 feet. The water levels in the mine are monitored on a monthly interval.

Following our tour and inspection, we returned to the mine office and discussed the operator's preliminary proposal for sampling of the tailings material in the tailings impoundment. We also discussed some general proposals for reclamation of the impoundment area. The reclamation plan is presently being worked on by Mr. Willoughby and the main corporate office in Coeur d'Alene, Idaho. Current plans are to have the impoundment area recontoured upon final configuration to be non-impounding. This will require substantial amounts of fill or waste rock material be placed on top of the tailings prior to retopsoiling and revegetation. The waste rock material could act as a capillary barrier to restrict the movement of soluble salts or other potentially deleterious material up into the rooting zone of surface vegetation.

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A number of different scenarios were discussed in terms of techniques to sample the tailings material. Division staff indicated that they would discuss some of these proposals with the Department of State Health and get back to the operator within the next couple of weeks.

jb  
cc: Paul Carter, BLM, Cedar City District Office  
Lowell Braxton  
Minerals Team  
MN2/78-81